Attorney Docket No.:   **P-633 (TI-0020)**
Inventors: **Taylor and Yu**
Serial No.:   **09/873,645**
Filing Date: **June 4, 2001**
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This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

  Claims 1-12 (canceled)

  Claim 13 (currently amended): A system for ~~transforming chromatographic elution profiles so that the profiles can be viewed and analyzed in a standardized format~~ computer implemented adjustment of signal data and time data of a plurality of chromatographic elution profiles to values useful for grouping of the plurality of chromatographic elution profiles method, said system comprising:

  a computer having a processor and memory, wherein the computer receives a set of data corresponding to a plurality of chromatographic elution profiles, wherein each profile is obtained from the separation of a DNA mixture by Denaturing Matched Ion Polynucleotide Chromatography, wherein each DNA mixture comprises homoduplex and heteroduplex molecules obtained from the hybridization of a sample DNA and its corresponding wild type DNA, and wherein the processor:

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(a) overlays said profiles on a coordinate system comprising a first axis associated with time values and a second axis associated with detector response values,

(b) selects first and second time points defining a time span wherein peaks due to said homoduplex and heteroduplex molecules are located within said span,

(c) for each profile and within said span, adjusts the baseline by applying a slope factor to each detector response value, said factor derived from a line connecting the detector response values at said first and second time points such that all of the profiles have a common baseline,

(d) then after creating the common baseline for each profile and within said span, normalizes the heights of the peaks to a pre-selected scale based on the height of the highest peak, and finally

(e) shifts each of the profiles along said first axis such that all of the profiles intersect at a pre-selected point on the last eluting peak of each profile within said span so that ~~the~~ values from the plurality of chromatographic elution profiles ~~can be viewed and analyzed in a standardized format~~ can be used to group the plurality of chromatographic elution profiles.

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Claim 14 (original): The system of claim 13 wherein said pre-selected value is zero, wherein said pre-selected scale is from 0 to 1, wherein said pre-selected point comprises a point on the last eluting edge of said last eluting peak, and wherein in step (c) the second axis value at the first time point and the second axis value at the second time point are set to zero.

Claim 15 (previously amended): The system of claim 13 wherein said processor further comprises the steps of:

(f) within said span, divides the first axis into a series of adjacent and evenly spaced time regions, wherein boundary lines perpendicular to said first axis are located between adjacent time regions,

(g) divides each boundary line numbered 1 through I

h) for each boundary line, numbered 1 through I

i) determines the number of profiles intersecting each of said segments,

ii) determines the segment having the highest number of intersecting profiles and determines the nearest segment having zero intersecting profiles,

iii) for each boundary line, assigns a numerical grouping factor of n^i to the profiles that have a second axis

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value greater than said segment having zero intersecting profiles

and assigns a grouping factor of 1 to the remaining intersecting

profiles, wherein n is an integer greater than 1,

    i) for each profile obtains a total value comprising the sum

of all the grouping factors assigned to said each profile,

    j) groups together those profiles having the same total

value.

    Claim 16 (previously amended): The system of claim 15

wherein n=2.

    Claims 17-27 (canceled).